THE SENTINEL
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Consider Your Propeller

You think you're under a lot of stress? Consider the pressures your prop experiences. Hartzell Propellers vividly describes these extreme forces on their *Propeller Safety* website: http://www.hartzellprop.com/flight_safety/index_safety.htm.

On takeoff, prop tips approach the speed of sound. Your prop also experiences vibrations from the airstream and from every power stroke your engine produces. These forces are joined by centrifugal forces that apply 10-20 tons of force per blade that try to pull the blades out of the hub. When the blades are intact, centrifugal forces are balanced. However, if you lose a blade or part of a blade, the remaining unbalanced prop can tear the engine off the mounts. Lose the weight of the engine and the CG goes out the aft side of the envelope and the aircraft becomes uncontrollable - instantly changing the pilot into a passenger! Propeller health is directly proportional to aviator health.

Nicks, chips and dings are a common occurrence on props. Sometimes these are overlooked during preflight inspection without considering the potential consequences. A general rule of thumb is that a nick that is less than 1/32-inch wide or deep can be deferred to the next inspection. Anything larger should be dressed-out by a professional A&P mechanic.

Nothing bears weight or strain without bending or stretching and propellers are no exception. As prop RPM increases, each metal particle in the prop is pulled outboard by centrifugal forces and by the particles they are attached to. When there is a nick in the prop, all of the prop's metal particles are pulled by the centrifugal force, but the particles immediately inboard of the nick are no longer being pulled by an adjoining particle. (Think how much easier a snack bag opens when you tear at the notch.) The prop is also bending forward as it pulls the aircraft - one side of the prop compresses as the other side stretches. The strain at the base of a nick can create changes in the metal that can persist even after it is dressed out.

One last note concerning props is that if the prop hits the runway during a hard landing, it's usually a better decision to keep the aircraft on the ground instead of going around. Once airborne again, you don't know how badly the prop was damaged and you could find yourself shaking the engine off the mounts!

Don't take your prop for granted - Your health depends on its health!

Fire Prevention Month

Well, the days are getting shorter and temperatures are dropping. It's time again, to prepare for the arrival of old man winter. Prior to cranking up the fireplace, a few moments to prepare your home could mean the difference between safety and sorrow. Here are a few items worth checking: Remove combustibles within three feet of your fireplace. Newspapers and magazines have a way of accumulating here during periods of non-use. Check your fire extinguisher pressure. It's also a good habit to shake your extinguisher periodically to keep the dry agent from becoming packed in the bottle. Check your smoke detectors. A good technique is to change the batteries each time we change to or from daylight savings time. Make sure the chimney is clear of debris and occasionally have the creosote deposits removed by a chimney sweep.

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These deposits will appear to be either glazed and tar-like or fluffy and powdery. Both are fire hazards and need to be removed. Follow these suggestions and you will have taken important steps towards your safety during the upcoming winter season.

Fire Safety By The Numbers:

- 2,200 - Number of people who lost their lives to a home fire in one year. Particularly at risk are the very young and the very old.
- 19 - Every 19 seconds, a fire department responds to a fire somewhere in the U.S.
- 156 - A fire death occurs in the U.S. every 156 minutes. A fire injury occurs every 28 minutes
- 17 - Although children 5 and under make up about 9% of the county's population, they account for 17% of the home fire deaths, assigning them a risk twice the national average.
- 1/5 - Only one-fifth of the home fire deaths are caused by fires in which a smoke alarm was present and operated.
- 1/10 - A careless smoker causes one out of every ten wildfires.

Cadet Sports Injuries

Cadet sports injuries (lacerations and fractures) were the most prevalent bodily injury trend experienced in FY04.

Prevention:

- Be in good physical condition to play the sport.
- Know and abide by the rules of the sport.
- Wear appropriate protective gear (for example, shin guards for soccer, a hard-shell helmet when facing a baseball or softball pitcher).
- Know how to use athletic equipment.
- Always warm up before playing.
- Avoid playing when very tired or in pain.
- Get a pre-season physical examination.

First Aid = "RICE":

- **R**est: Reduce or stop using the injured area for 48 hours. If you have a leg injury, you may need to stay off of it completely.
- **I**ce: Put an ice pack on the injured area for 20 minutes at a time, 4 to 8 times per day. Use a cold pack, ice bag, or a plastic bag filled with crushed ice that has been wrapped in a towel.
- **C**ompression: Compression of an injured ankle, knee, or wrist may help reduce the swelling. These include bandages such as elastic wraps, special boots, air casts and splints. Ask your doctor which one is best.
- **E**levation: Keep the injured area elevated above the level of the heart. Use a pillow to help elevate an injured limb.

Parents entrust CAP with their children. It's a big responsibility and we need to take every precaution to ensure their safety.

Carbon Monoxide Poisoning

What's the Problem?

Carbon monoxide, or CO, is an odorless, colorless gas that can cause sudden illness and death. Carbon monoxide is found in combustion fumes, such as those produced by cars and trucks, small gasoline engines, stoves, lanterns, burning charcoal and wood, and gas ranges and heating systems. Carbon monoxide from these sources can build up in enclosed or semi-enclosed spaces. People and animals in these spaces can be poisoned by breathing it.

How Do We Prevent It?

Don't use any combustion (fuel burning) devices in an enclosed space, unless it is professionally installed, well-vented and properly maintained. In addition, when using these combustible devices outdoors, make sure the exhaust is well-away from open windows and doors.

Other Safety Meeting Topics

- **Lead Acid Battery Safety**: http://www.defence.gov.au/army/batterysafe/lead_index.htm
- **Chainsaw Safety**: http://www.ext.nodak.edu/extpubs/ageng/safety/ae1025w.htm#key
- **Halloween Safety**: http://virtual.clemson.edu/groups/FieldOps/CGS/hallow2.htm

You can lead a man to knowledge, but you can't make him think!